

FARMERS PERCEPTION ON FODDER CULTIVATION: THE CASE OF GREEN FODDER IN KERALA

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ABSTRACT

The primary objective of the study was to assess the farmers' perception on fodder cultivation and to determine how the perception is influenced by the personal and social characteristics of the farmers. The study was conducted in Kerala state of India, comprising of 242 farmers selected from three districts of the state. The farmers were asked a series of statement and the degree of agreement was assessed in a five point scale to quantify the perception level of farmers. The overall perception score was calculated for each farmer and was the relationship with the socio-personal characteristics was established through correlation procedure. The results indicated that age, occupation, farm size, area under fodder, fodder farming experience, livestock capital, dairy herd size, annual income, labour availability, innovativeness, scientific orientation, integrated farming system and marketing behavior had a greater influence on perception of farmers related with fodder cultivation.

KEYWORDS: Fodder, Perception & Kerala

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INTRODUCTION

Dairy sector is a major occupation and source of income in rural areas and green fodder is an important part of sustainable agriculture. Green fodder is not only a feed material for livestock but also has an impact on the environment by improving the organic matter content of soil, increasing the metabolism of animals, ensuring year around fodder production, reducing weed development and the root system of forage crops checks soil erosion. To increase the milk yield of exotic breed cattle than local breeds, a farmer requires high quality fodder and a balanced ration. Animal nutrition plays a major role when it comes to dairy production and feed scarcity accounts for nearly half of all losses in Indian dairy production (Pratap and Jha 2005).

Livestock provides livelihood for the marginal and small land holders. In India, it is estimated that of the total cultivated area around 4 to 5 per cent of total cultivated area is devoted to fodder production. The total area under cultivated fodders is 8.30 million hectares on individual crop basis (Bhagmal *et al.* 2011). The contribution of livestock towards National GDP is 4.11 per cent against total agriculture GDP of 25.60 per cent and provides a livelihood to about 20.50 million people in the country (GOI, 2018). Islam *et al.* (2017) mentioned in their study that cent per cent farmers of the study areas opined that cattle rearing increased dramatically due to fodder production. As green grasses are more conducive to milk production, it has a great demand to dairy cattle farmers. Almost all the farmers give positive consent in case of more milk production, increasing family income, more milk consumption by the family members and development cost increased (such as education, health, sanitation, housing,

clothing and nutrition etc.) due to gain in more family income in household. There is an increasing trend in livestock population and fodder has now become an irreplaceable component of dairy sector.

Research has been undertaken to study the types of fodder and forage crops, their growth, yield and economics of production, effectiveness of fodder on dairy yield and even hydroponics fodder technology. Though numerous lab and field research works related to fodder are available the impact fodder crops have on society or farming community is least exploited. It is on this basis the objective for this paper was framed and the objective of this paper is to show the farmers' perception on fodder technology and how the socio personal characteristics of farmer influence the perception.

MATERIAL AND METHODS

The study was conducted in three districts of Kerala state with an area of 5600 hectares under fodder crops. Kerala which is the southernmost state of India has fourteen revenue districts which are grouped into three based on the geography in the state: Northern Kerala, Central Kerala and Southern Kerala. From each region, district with highest area under green fodder cultivation was selected as per Agricultural Statistics (2016-17) published by Department of Economics and Statistics, Government of Kerala.

The selected districts were Wayanad from Northern Kerala, Palakkad from Central Kerala and Kottayam from Southern Kerala. From each district, two blocks with maximum area under green fodder cultivation were identified and selected as location of research. The identified blocks viz. Uzhavoor and Erattupetta from Kottayam, Attappady and Chittoor from Palakkad and Kalpetta and Mananthavady from Wayanad were selected.

To finalize the sample for the study, Dairy Development Offices and Dairy Co-operative Societies were visited in all the three districts. With the help of the department officials and Dairy Co-operative Societies of the concerned block, details related to dairy farmers and fodder subsidy beneficiaries were collected. Dairy co-operative society with highest number of farmers were identified and sample size of 242 fodder farmers were finalized through Proportionate Random Sampling Technique for each block based on the number of beneficiaries and the sample distribution is represented in table 1.

Table 1: Sample Distribution in Study Areas

District	Palakkad		Kottayam		Wayanad	
Block	Chittur	Attappady	Uzhavoor	Erattupetta	Kalpetta	Mananthavady
Sample size	42	22	16	52	49	61

Field survey and interview method were followed to collect primary data from the respondents. Pilot survey in Trivandrum district of Kerala was conducted in order to develop a well-structured interview schedule with required modification before starting the primary data collection. National Dairy Development Board officials and office bearers of Dairy Co-operative Societies from selected villages were also contacted for strengthening the research. Online and offline print media were used for secondary data collection. The data collected from respondents, interview, discussions and observation were scored, processed and were statistically analyzed using Statistical Package for Social Sciences (SPSS).

Perception of farmer on fodder cultivation was measured as degree of agreement or disagreement as perceived by the farmer respondents. The scale developed consisted of statements and the responses for each statement was measured on a five point continuum ranging from strongly disagree to strongly agree. The score assigned for the statements ranged from five to one for negative statements and one to five for positive statements. The scores obtained for each statement by an

individual respondent were summed up to obtain the perception score. Based on the score obtained, the respondents were classified into low, medium and high using cumulative frequency method. The scores obtained for each individual farmer were correlated with the socio economic characters of the farmer to derive the relationship existing between perception of farmers and profile characteristics.

RESULTS AND DISCUSSIONS

Study was aimed to categorise the respondents into different level of perception regarding fodder cultivation viz. low, medium and high category. The distribution of respondents based on the extent of perception is presented in table 2.

Table 2: Distribution of Respondents Based on Extent of Perception

Sl. No	Category	Palakkad (n=64)		Kottayam (n=68)		Wayanad (n=110)		Total (N=242)	
		No	%	No	%	No	%	No	%
1	Low	5	7.81	21	30.88	16	14.54	42	17.36
2	Medium	39	60.94	42	61.77	81	73.64	162	66.94
3	High	20	31.25	5	7.35	13	11.82	38	15.70

It is apparent from table II that 66.94 per cent of farmers had medium level of perception on fodder cultivation followed by low category with 17.36 per cent and high category with 15.70 per cent.

It can be inferred from the table II that all the three districts represent the total sample size when it comes to perception of farmers on fodder cultivation. In Palakkad district, a little above one-third of the respondents (31.25%) had high perception which may be due to the importance of farming and dairy sector of the district in general. In Kottayam district, a little more than thirty per cent of respondents belonged to low category when it comes to perception. Cropping system of Kottayam district is dominated by plantation crops including rubber, coconut, cocoa and tea (Farm Information Bureau, 2011). Based on the report issued by National Dairy Development Board (2016) dairy sector of Kottayam district has faced a decrease in dairy sector over a period of time. This decrease might have affected the perception of farmers on fodder cultivation. The distribution of farmers based on the perception of farmers on fodder cultivation is represented in table 3.

Table 3: Distribution of Farmers Based on their Perception on Fodder Cultivation

Sl. No	Particulars		SDA	DA	UD	A	SA
1	Green fodder cultivation is profitable	No.	0	11	80	54	97
		%	0	4.55	33.06	22.31	40.08
2	Green fodder can be cultivated as sole crop	No.	0	13	12	111	106
		%	0	5.37	4.96	45.87	43.80
3	Higher cost for seed makes fodder cultivation undesirable	No.	23	15	177	17	10
		%	9.50	6.20	73.14	7.02	4.13
4	There is no market for fodder sales	No.	47	116	22	39	18
		%	19.42	47.93	9.09	16.12	7.44
5	Fodder cultivation is a risk mitigating crop	No.	0	6	45	84	107
		%	0	2.48	18.60	34.71	44.21

SDA: Strongly Disagree DA: Disagree UD: Undecided A: Agree SA: Strongly Agree

Data derived from Table III with respect to the perception of farmers on fodder cultivation reveals that 40.08 per cent of farmers 'strongly agreed' that green fodder cultivation is profitable followed by 22.31 per cent of farmers who 'agreed' on profitability of fodder. More than one-third (33.06%) of farmers fell in the 'undecided' category and the rest of the respondents disagreed that green fodder cultivation is profitable. Regarding mono cropping of green fodder 45.87 per

cent followed by 43.80 per cent of farmers showed agreement to the statement under 'agree' and 'strongly agree' category respectively. The agreement of farmers related to green fodder cultivation might be influenced by the ever increasing need of the crop in the agricultural scenario and in livestock sector but most of the farmers were not cultivating green fodder on commercial basis.

Considering the cost and marketing aspect of green fodder majority (73.14%) of the respondents belonged to 'undecided' category for the undesirability of fodder crop due high cost of fodder seeds and 47.93 per cent disagreed that there is no market for fodder sales followed by 19.42 per cent of respondents who strongly disagreed that there is no market for fodder sales. Since farmers have not undertaken a commercial line of fodder, they may be unaware about marketing potential of the crop. It may be inferred from the Table that there a market for green fodder sales can exist and the cost incurred to purchase fodder seeds may depend on the financial stability of the farmers.

Risk mitigation of green fodder is strongly agreed upon by 44.21 per cent of respondents followed by 34.71 per cent farmers agreed the same whereas 18.60 per cent and 2.48 per cent of respondents belonged to undecided and disagree category. Fodder acts as a risk mitigating crop in by retaining soil water capacity, prevention of soil erosion, intercropping fodder crop increases cropping intensity, reduced energy requirement and requirement of chemical input for fodder is less which in turn leads to more sustainable environment.

In order to analyze the influence of independent variables on the perception of farmers on fodder cultivation simple correlation was done. Correlation results between perception of farmers on fodder cultivation and the independent variables are shown in table 4

Table 4: Correlation Results Between Perception of Farmers on Fodder Cultivation and the Independent Variables

Variable	Independent Variable	r
X ₁	Age	-0.010**
X ₂	Educational status	-0.009 ^{NS}
X ₃	Occupational status	-0.008 ^{NS}
X ₄	Family size	-0.067 ^{NS}
X ₅	Farm size	0.230**
X ₆	Area under fodder cultivation	0.249**
X ₇	Fodder farming experience	0.102**
X ₈	Livestock possession	-0.022 ^{NS}
X ₉	Livestock capital	0.201**
X ₁₀	Dairy herd size	0.259**
X ₁₁	Annual income	0.206**
X ₁₂	Irrigation potential	0.099 ^{NS}
X ₁₃	Labour availability	-0.131*
X ₁₄	Innovativeness	0.110**
X ₁₅	Extension participation	0.005 ^{NS}
X ₁₆	Scientific orientation	0.133*
X ₁₇	Decision making ability	0.078 ^{NS}
X ₁₈	Trainings undergone related to fodder	0.015 ^{NS}
X ₁₉	Integrated farming system	0.220**
X ₂₀	Marketing behaviour	-0.038**
X ₂₁	Social acceptability	0.092 ^{NS}
X ₂₂	Knowledge	0.029 ^{NS}

** - Significant at 1 per cent level

*- Significant at 5 per cent level

NS – Non Significant

The results of the correlation analysis presented in table V reveals that out of 22 independent variables, 13 variables had significant relation with perception of farmers on fodder cultivation. It could be observed that correlation coefficient farm size (X_5), area under fodder (X_6), fodder farming experience (X_7), livestock capital (X_9), dairy herd size (X_{10}), annual income (X_{11}), innovativeness (X_{14}), scientific orientation (X_{16}) and integrated farming system (X_{19}) had a positively significant relationship with perception of farmers on fodder cultivation at one per cent level of probability. Age (X_1) and marketing behavior (X_{20}) had negative significant association at one per cent level of probability with perception. Labour availability (X_{13}) was negatively significant at five per cent level probability and scientific orientation (X_{16}) was positively significant at five per cent level probability with perception. The rest of the variable *viz.* education, family size, livestock possession, irrigation potential, extension participation, decision making ability, training related to fodder, social acceptability and knowledge had no significant relationship with perception.

Rejecting and accepting the null hypothesis for significant and non-significant correlation value, it is inferred that the perception of farmers on fodder cultivation was the function of age, farm size, area under fodder, fodder farming experience, livestock capital, dairy herd size, annual income, labour availability, innovativeness, scientific orientation, integrated farming system and marketing behaviour. As farm size increases, area under fodder is also increased because farmers have adequate land resource for other agricultural crops too. Livestock capital, dairy herd size and integrated farming system showed positive significance. It can be inferred that a diverse farming system which includes livestock along with other cropping components influences the perception of farmer and this integrated farming system helps in achieving a higher and better income from farm. Innovativeness and scientific orientation had a positive significance and it can be inferred that perception of farmer on fodder cultivation is influenced by the exposure to scientific and technical knowledge. Age showed negative significance which can indicate that young farmers are interested to perceive agriculture and fodder cultivation. Fodder crop is not a labour intensive crop and this maybe the reason for the negative significance of labour availability and farmers don't perceive fodder market and are unaware of the marketing potential green fodder has, which might have led to negative significance of marketing behaviour on perception.

CONCLUSIONS

The importance of fodder in dairy sector is unimaginable. The higher perception and degree of agreement on fodder cultivation shows that farmers had a greater understanding on the positive effects of fodder technology. Even though farmers perceive that fodder can be cultivated as a sole crop and are aware about the market of fodder crops, respondents have not utilized the full market potential of the crop. As far as the association of perception of farmers on fodder cultivation with the socio-economic profile of respondents age, occupation, farm size, area under fodder, fodder farming experience, livestock capital, dairy herd size, annual income, labour availability, innovativeness, scientific orientation, integrated farming system and marketing behavior. A proper grazing policy measure can be adopted by the Government to improve area under fodder cultivation. Dairy farmers may be introduced to different fodder trees which can help to tackle inadequacy of fodder crops. A policy environment in terms of credit facility, fodder marketing and collaborative farming should be provided to address issues related to credit facility, market inadequacy and to increase area under fodder cultivation.

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